



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/645,952

08/22/2003

Xiao-Fan Feng

SLA1222

8258

52894

7590

03/25/2008

KRIEGER INTELLECTUAL PROPERTY, INC.

P.O. BOX 1073

CAMAS, WA 98607

EXAMINER

KAU, STEVEN Y

ART UNIT

PAPER NUMBER

2625

MAIL DATE

DELIVERY MODE

03/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/645,952	FENG ET AL.	
	Examiner	Art Unit	
	STEVEN KAU	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 1-13 and 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-18 and 20-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group II (specie shown in Fig. 12) in the reply filed on December 28, 2007 is acknowledged.

Accordingly, claims 1-4, 5-13 and 19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected group, there being no allowable generic or linking claim.

Thus, claims 14-18 and 20-22 will be further examined in this action.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following must be shown or the feature(s) canceled from the claim:

a) Claim 21, a system claim, line 6, "a designator for designating pixel values";

No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 21, recites, "A system for creating a spatio-temporal array of dither patterns, said method comprising: a. a spatio-temporal array of dither pattern tiles comprising a plurality of temporal framesets, each of said framesets comprising a plurality of pattern tiles for each of a plurality of color channels; and b. a designator for designating pixel values in said dither pattern tiles wherein subsequently-designated pixel values are spatially dispersed from previously-designated pixel values in the same dither pattern tile and dither pattern tiles in other color channels". Claim 21 is an independent system claim and there is no method as a "said method" in the claim. Applicant also failed to particularly point out "a designator for designating pixel value". Is the designator a computer, a television, a filter, a hardware device or a software module?

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claim 22 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 22 is drawn to "a computer-readable medium", which can be a signal or a software program, and can be characterized as

either “functional descriptive material” or “nonfunctional descriptive material”. Since the computer program comprising steps of establishing a spatio-temporal array and designating pixel values in dither pattern tiles, it is being considered as “nonfunctional descriptive material” because “a computer-readable medium” per se in the claims can merely be an abstract idea.

Also, considering the claim as “functional descriptive material” imparts with functionality, but not being employed as a computer component (or other physical structures), is considered not statutory. “In contrast, a claimed computer-readable medium encoded with a computer program... is thus statutory.” (See “*Interim Guideline for Examination of Patent Application for Patent Subject Matter Eligibility*”, ANNEX IV, Page 53, First Paragraph;).

Therefore, both types of “descriptive material” are nonstatutory when claimed as descriptive material per se (See “*Interim Guideline for Examination of Patent Application for Patent Subject Matter Eligibility*”, ANNEX IV, Page 50, Second Paragraph;). As well as the claimed program is not necessarily a computer program, and is not encoded or embodied on a computer readable medium, there is no structural and functional interrelationships, thus, the claim is considered non-statutory.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

Art Unit: 2625

obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 14-18 and 20-21 are rejected on the ground of nonstatutory anticipated-type double patenting as being unpatentable over claim 18 of US 7,352,373.

Claim 21 in the instant application are directed to the genus and Claim 18 in the patent US 7,352,373 are directed to a species. The comparison of these two claims is as follows:

#	Instant Application	#	US Patent 7,352,373
Claim 21		Claim 18	
A	A system for creating a spatio-temporal array of dither patterns, said method comprising:	A	A system for creating a spatio-temporal array of <u>additive image</u> dither patterns, said method comprising (emphasis added by the examiner):

B	a. a spatio-temporal array of dither pattern tiles comprising a plurality of temporal framesets, each of said framesets comprising a plurality of pattern tiles for each of a plurality of color channels;	B	a. a spatio-temporal array of <u>additive image</u> dither pattern tiles comprising a plurality of temporal framesets, each of said framesets comprising a plurality of pattern tiles for each of a plurality of color channels (emphasis added by the examiner);
C	b. a designator for designating pixel values in said dither pattern tiles wherein subsequently-designated pixel values are spatially dispersed from previously-designated pixel values in the same dither pattern tile and dither pattern tiles in other color channels	C	b. a designator for designating pixel values in said dither pattern tiles wherein subsequently-designated pixel values are spatially dispersed from previously-designated pixel values in the same dither pattern tile (AND) dither pattern tiles in other color channels, <u>and dither pattern tiles in other temporal frames</u> (emphasis and the word “AND” are added by the examiner).

Claim 14 of the instant application recites identical features as claim 21 of the instant application.

Claims 14 and 21 of the instant application are broader in every aspect than the patent claim 18 and is therefore an obvious variant thereof.

Although the conflicting claims are not identical, they are not patentable distinct from each other because claims 14 and 21 is generic to all that is recited in claim 18 of the patent. That is, claims 14 and 21 are anticipated by claim 18 of the patent.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 14-18, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lippel (US 4,758,893) in view of Gupta et al (Gupta) (US 6,851,783)

Regarding claim 21.

Lippel discloses a system (**Figs 5 & 12, col 4, lines 1-3 & lines 22-24**) for creating a spatio-temporal array of dither patterns (**e.g. one skilled in the art understands "cinematic dithering is a spatio-temporal dithering technique, and Lippel disclose that dither elements are arranged in array such hexagonal and rectangular array; Fig. 6 and col 5, lines 44-56 & col 6, lines 43-61**), said method comprising: a. a spatio-temporal array of dither pattern tiles (**e.g. cinematic dithering**

of Fig. 1 and 5, col 4, lines 42 through col 5, line 12) comprising a plurality of temporal framesets (**the examiner interprets that "temporal framesets" are group(s) of frames in motion, such Lippel's TV framesets of Figs 1, 6, 7 & 10**), each of said framesets comprising a plurality of pattern tiles (**e.g. dither pattern elements of Fig. 1, col 4, lines 43-54**) for each of a plurality of color channels (**e.g. Lippel discloses cinematic dithering for color television, and one skilled in the art at the time the invention was made, understands that dithering process has to be applied to each color channel, i.e. Red, Green and Blue channels, Fig. 14, col 10, lines 43-60**);

Lippel does not expressly teach that b. a designator for designating pixel values in said dither pattern tiles wherein subsequently-designated pixel values are spatially dispersed from previously-designated pixel values in the same dither pattern tile and dither pattern tiles in other color channels.

Gupta teaches a designator (**e.g. processing logic, col 4, lines 31-41**) for designating (**e.g. selecting**) pixel values (**pixels in spatial location has their value**) wherein subsequently-designated pixel values are spatially dispersed (**e.g. error diffusion process**) from previously-designated pixel values in the same dither pattern tile and dither pattern tiles in other color channels (**e.g. Gupta discloses that a processing logic selects color channel of pixels for dithering to generate dither halftone output, then error diffusion is applied to produce an error-diffusion halftone output; Figs 1A-C & 2B, col 4, lines 31 through col 5, line 37**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Lippel to include a designator for designating pixel values in said dither pattern tiles wherein subsequently-designated pixel values are spatially dispersed from previously-designated pixel values in the same dither pattern tile and dither pattern tiles in other color channels taught by Gupta to produce better quality image by combining dither with dispersing errors into neighborhood pixels (col 1, lines 53-55 & col 2, lines 6-7).

Regarding claim 14.

Claim 14 recites identical features as claim 21, except claim 14 is a method claim. Thus, arguments similar to that presented above for claim 21 are also equally applicable to claim 14.

Regarding claim 22.

Claim 22 recites identical features as claim 21, except claim 22 is a computer-readable medium claim. Thus, arguments similar to that presented above for claim 21 are also equally applicable to claim 22.

Regarding claim 15.

Claim 15 recites identical features as claim 14. Thus, arguments similar to that presented above for claim 14 are also equally applicable to claim 15.

Regarding claim 16.

Lippel discloses wherein said dispersion from pixel values in other temporal frames is weighted wherein temporal frames more temporally distant from a pixel value have a lower dispersion than closer temporal frames (e.g. **Lippel discloses weighted**

temporal frames for subcycling cinematic dither and therefore, temporal instant of temporal frames can be controlled, col 10, lines 13-24).

Regarding claim 17.

Lippel discloses wherein said dispersion from pixel values in other color channels is weighted (col 10, lines 13-24).

Lippel does not expressly teach wherein other color channels have a lower dispersion than the color channel in which a pixel value is designated.

Gupta teaches wherein other color channels have a lower dispersion than the color channel in which a pixel value is designated (**e.g. processing logic selects channel for dithering and error-diffusion process, there are different ways to select color channel; this means one skilled in the art at the time the invention was made could have manipulated dispersion level to select color channels for pixel process; col 5, lines 15-23 & col 10, lines 13-24**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Lippel to include wherein other color channels have a lower dispersion than the color channel in which a pixel value is designated taught by Gupta to prioritizing color channels for pixel process.

Regarding claim 18.

Lippel discloses wherein pixel values designated in a last temporal frame are considered temporally adjacent to a first-designated frame wherein said pixel values in said first-designated frame have a dispersion effect on pixels designated in said last

frame (e.g. Lippel discloses one-cycle and multi-cycle species and cinematic dither processing in Figs. 2-6 and Figs. 8-10, respectively).

Allowable Subject Matter

11. Claim 20 will be allowable if all other rejections are overcome. The primary reasons for allowance for claim 20 is the inclusion of the limitation of a method for creating a spatio-temporal array of dither patterns such (a). establishing an initial temporal offset frameset (ITOF), wherein said ITOF comprises a pre-determined pattern for each of a plurality of color channels; (b). establishing a first temporal frameset comprising dither pattern tiles for each of a plurality of color channels; (c). designating a first pixel value at a first point in a first dither pattern tile of said first temporal frameset, wherein said first point is dispersed from at least one pixel value in said pre-determined pattern; (d). designating a second pixel value at a second point in said first dither pattern tile of said first temporal frameset, wherein said second point is placed at a location that is dispersed away from at least one pixel value in said first dither pattern tile. It is these limitations either alone or combined as claimed that were taught, found, or suggested by prior art. The closest prior arts in the record are Lippel (US 4,758,893) and Gupta et al (Gupta) (US 6,851,783)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Kau whose telephone number is 571-270-1120 and fax number is 571-270-2120. The examiner can normally be reached on M-F, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/S Kau/
Examiner, Art Unit 2625
3/18/2008

/Gabriel I Garcia/
Acting SPE of Art Unit 2625